



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

VII. *A Letter from Mr. John Reinhold Forster, F. R. S. to William Watſon, M. D. giving ſome Account of the Roots uſed by the Indians, in the Neighbourhood of Hudſon's-Bay, to dye Porcupine Quills.*

N^o 2, Somerſet Stable-yard, Strand,
Jan. 16, 1772.

S I R,

Read Feb. 27,
1772.

AMONG the curioſities preſented by the Hudſon's Bay Company to the Royal Society, is a ſmall parcel of porcupine quills, dyed by the wild natives, ſome red and ſome yellow, together with the roots of ſome plants they uſe for that purpoſe.

I examined them carefully, at your deſire, and found that they are probably of the ſame kind with thoſe mentioned by Prof. Kalm, vol. iii. p. 14. and 160 of the Engliſh tranſlation. The one root, dying yellow, is called by the French in Canada, *Tiſavoyanne jaune*; the other, dying red, has the name of *Tiſavoyanne rouge*. Prof. Kalm declares the latter to be a new plant, belonging to the genus of *Galium*, and received by Dr. Linnæus in his *Species Plantarum*, p. 153. by the ſpecific name of *Tindorium*,

on account of its dying quality. It grows in woody, moist places, in a fine soil. Kalm observes, “ that
 “ the roots of this plant are employed by the In-
 “ dians in dying the quills of the American Por-
 “ cupine red, which they put into several places of
 “ their work : air, sun, and water, seldom change
 “ this colour. The French women in Canada
 “ sometimes dye their cloth red with these roots,
 “ which are but small, like those of the *Galium*
 “ *luteum* or yellow bedstraw.”

Dr. Linnæus describes this plant, as having six narrow linear leaves at each knot of the stem, and four at the branches ; commonly two flowers are on each stalk, and its seeds are smooth. The roots, when dry, are of the thickness of a crow quill, brown on the outside, and of a bright purple red, when broken, on the inside.

The second plant, or the *Tifavoyanne jaune*, is according to Prof. Kalm, vol. iii. p. 160. “ the
 “ threeleaved Hellebore (*Helleborus trifolius* Linn.)
 “ grows plentifully in woods, in mossy, not too wet,
 “ places. Its leaves and stalks are employed by the
 “ Indians to dye yellow several kinds of their work,
 “ made of prepared skins. The French learned
 “ from them to dye wool and other things yellow
 “ with this plant.”

Among the roots sent as a specimen from Hudson's-bay, I found several leaves, which I separated, and found the plant undoubtedly to be the threeleaved Hellebore.

In the 4th vol. of Dr. Linnæus's *Amoenitates Academicæ* is a figure of this plant, which upon comparison I found by no means to be accurate : for
 the

the leaves in our specimens, and in those collected by a gentleman who favored me with the sight of the plant, are far more pointed, than in the engraved figure. The stalks have constantly but one flower.

The dyed porcupine-quills sent along with the roots from Hudson's-bay, are of the brightest red and yellow: and this circumstance suggested to me the thoughts of trying whether these roots might not be usefully employed in dying. I mentioned it to you, and was encouraged to make such a trial, as the small quantity of the roots would permit.

I boiled a piece of flannel in a solution of half salt of tartar and half alum: the wet flannel was hereupon put into the decoction of the threeleaved Hellebore-roots, and boiled in it for the space of about 12 or 15 minutes; the flannel, when extracted, was dyed with a bright and lasting yellow dye. A white porcupine quill, boiled in the same decoction, became nearly of as bright a yellow, as those sent over from Hudson's-bay. This experiment made me believe, that I had hit upon the right method of dying with the threeleaved Hellebore; and will, I hope, prompt the directors of the Hudson's-bay Company to order larger quantities of this root from their settlements, as it will no doubt become an useful article of commerce.

The flannel, boiled in salt of tartar and alum as above-mentioned, was likewise immersed and boiled for nearly the same space of time as in the former experiment, in a decoction of the root of the *Galium Tinctorium*, but it would dye only a dull and faint red. A porcupine quill boiled with it became yellow, but by no means red. This operation

tion convinced me, that the Indians must certainly have some method or other to extract the bright and lasting colour, which I could not perform. They use perhaps the root quite fresh, which circumstance probably makes them succeed in their dying process. If it could be brought about, to extract and afterwards to fix on wool the dye of this root, it would, no doubt, on account of its bright colour, be a valuable acquisition for our manufactures: and I do not in the least doubt of the probability to succeed in the attempt, as the wollen stuffs are animal substances as well as the porcupine quills, and therefore easily susceptible of any dye.

The directors of the Hudson's-bay Company will, we hope, order their servants at the settlements to examine carefully and minutely, the method employed by the Indians in dying red with this root, and to send an account thereof, and greater quantities of this root over, that several chemists may be enabled to make experiments at large with them; for often, in dying, the experiments will not succeed, when tried in small quantities.

The wild inhabitants of North America are certainly possessed of many important arts; which, when thoroughly known, would enable the Europeans to make a better, and more extensive use of many unnoticed plants, and productions of this vast continent, both in physic, and in improving our manufactures, and erecting new branches of commerce.

To give an instance of this, I will only mention, that the Spaniards of Mexico have but lately learnt of the inhabitants of California; the art of dying

the deepest and most lasting black, that ever was yet known. They call the plant they employ for that purpose Cascalote; it is arboreous, with small leaves and yellow flowers; its growth is still slower than that of an oak; it is the least corrosive of all the known substances employed in dying, and strikes the deepest black; so that, for instance, it penetrates a hat to such a degree, that the very rags of it are thoroughly black. The leaves of the Cascalote are similar to those of the Husiaoke, another plant likewise used for dying black with, but of an inferior quality. The latitude of California lets us hope, that the country near the Mississippi, or one of the Florida's, contains this Cascalote, the acquisition of which would be of infinite use in our manufactures.

Were Natural History thus employed in applying the natural productions for procuring the necessaries, or adding to the comforts and ornaments, of human life, it would for the future free this science from the vulgar opinion, that it is merely speculative, and incapable of being of the least utility in common life; a prejudice which gains more ground by the injudicious and unprofitable manner, now chiefly in vogue, in studying this branch of human knowledge; and which might be removed, if powerful trading companies would encourage the efforts of the naturalist, by enabling them to search the treasures of nature, in the various countries subject to the British Crown, and connected with its subjects by trade and commerce. Pardon, Sir, that I detain you so long on a point of which you are so well convinced, and
which

which you have frequent opportunities to convince others of. I am, with the truest regard,

S I R,

Your most obedient,

humble servant,

John Reinhold Forster.